李明东

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教育经历

香港科技大学   *2021.09 - 2025.08 (预计)*
博士在读，PhD in Individualized Interdisciplinary Program (Robotics and Autonomous System)
Computational Cognitive Engineering Lab
导师: Prof. Yiwen WANG, Prof. Qifeng CHEN (co-supervision)

海德堡大学   *2024.12 - 2025.02*
访问学者，BMBF Research Group at Interdisciplinary Center for Scientific Computing
Dynamical Systems and Artificial Intelligence Lab
Supervisor: Prof. Zahra Monfared

浙江大学   *2018-2021*
硕士，机械设计及理论
流体动力与机电系统国家重点实验室
导师: 冯毅雄教授 (谭建荣院士团队)

同济大学   *2013-2018*
学士，机械设计制造及其自动化 （荣誉班级）

研究领域及研究兴趣

脑机接口，生理信号分析，点过程滤波，可穿戴设备，NeuroAI，产品方案设计

当前工作

1. **Mingdong Li**, Shuhang Chen, Zhiwei Song, Xiang Zhang, Camilo Libedinsky, Rosa So, Yiwen Wang*. Assessing Modifications of Functional Neural Connectivity in Point Process Filter for Neuroprosthetic Control, ***IEEE Transactions on Biomedical Engineering***. *(即将提交)*

2. Zhiwei Song, Xiang Zhang, **Mingdong Li**, Jieyuan Tan, Yiwen Wang*. An Online Knowledge Transfer Framework for Task Learning in Brain-Machine Interfaces, ***IEEE Transactions on Neural Systems and Rehabilitation Engineering***. *(在审)*

论文发表（期刊）

1. **Mingdong Li**, Shuhang Chen, Xiang Zhang, Yiwen Wang*. Neural Correlation Integrated Adaptive Point Process Filtering on Population Spike Trains, 2024, ***IEEE Transactions on Neural Systems and Rehabilitation Engineering***. *(IF=4.8)*

2. **Mingdong Li**, Shanhe Lou*, Hao Zheng, Yixiong Feng, Yicong Gao, Siyuan Zeng, Jianrong Tan. A Cognitive Analysis-based Key Concepts Derivation Approach for Product Design, 2024, ***Expert Systems With Applications*** *(IF=7.5)*.

3. **Mingdong Li**, Shanhe Lou*, Yicong Gao, Hao Zheng, Bingtao Hu, Jianrong Tan. A Cerebellar Operant Conditioning-inspired Constraint Satisfaction Approach for Product Design Concept Generation, 2023, ***International Journal of Production Research*** *(IF=7.0)*.

4. Xuanyu Wu, Zhaoxi Hong*, Yixiong Feng, **Mingdong Li**, Shanhe Lou, Jianrong Tan. A Semantic Analysis-driven Customer Requirements Mining Method for Product Conceptual Design, 2022, ***Scientific Reports*** *(IF=3.8)*.

5. Yixiong Feng, **Mingdong Li**, Shanhe Lou*, Yicong Gao, Jianrong Tan. A Digital Twin-Driven Method for Product Performance Evaluation Based on Intelligent Psycho-Physiological Analysis, 2021, *ASME Journal of Computing and Information Science in Engineering (IF=2.6, 导师一作).*

论文发表（会议/专利）

1. 冯毅雄, **李明东**, 高一聪. CN110090818B, 发明专利授权,2020

2. 李梦茹, 张引强, 徐楠婕, **李明东**, 刘铄. CN106127958B, 发明专利授权,2018

3. **Mingdong Li**, Mingyi Wang, Yiwen Wang*. An Adaptive Superposition Point Process Model with Neuronal Encoding Engagement Identification, *2024 46th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC) (Oral).*

4. Zixu Wang, Shuhang Chen†, **Mingdong Li**, Yiwen Wang*. Tracking Dynamic Conditional Neural Correlation during Task Learning, *2024 46th EMBC (†: co-first author. Oral).*

5. **Mingdong Li**, Jieyuan Tan, Zhiwei Song, Yiwen Wang*. Modeling Neural Population Dynamics in a Point Process Filter for Neuroprosthetics Control, *Annual Conference of International Association of Neurorestoratology (IANR) 2024 (Abstract, Poster).*

6. **Mingdong Li**, Shuhang Chen, Zhijia Zhao, Yiwen Wang*. Tracking the Dynamic Functional Neural Connectivity via Conjugate Gradient Optimization, *2023 45th EMBC (Oral).*

7. **Mingdong Li**, Shuhang Chen, Xi Liu, Zhiwei Song, Yiwen Wang*. Modeling Neural Connectivity in a Point-Process Analogue of Kalman Filter, *2022 44th EMBC (Poster).*

个人荣誉及奖项

1. DAAD AInet fellowship (AI4Science), 德国学术交流中心 *2024*
2. NextGen Scholar Award, IEEE Annual International Conference of EMBS *2024*
3. 浙江大学研究生毕业学年奖学金 (前 1%) *2021*
4. 2019 之江杯全球人工智能竞赛-多目标跟踪赛道，优胜奖（6-12 名），之江实验室 *2019*
5. 第七届全国大学生机械设计创新竞赛，一等奖 2016
6. 同济大学优秀学生奖学金，二等 2 次、三等 1 次 *2013-2018*

个人技能

1. 编程: Python/Matlab/Pytorch toolbox/C++
2. 产品设计建模：AutoDesk Inventor/Solidworks/AutoCAD/ANSYS
3. 语言: 中文（母语），英语（熟练），德语（中等）
4. 动物行为训练系统和神经信号采集系统搭建、数据预处理及其应用
5. SD 大鼠，M1/mPFC 双脑区微丝电极植入手术

项目经历

1. 针对侵入式脑机接口的点过程滤波及神经群体编码研究（PhD thesis） *2021.9-至今*

2. 大鼠电极植入手术负责人, Computational Cognitive Engineering Lab *2023.9-2024.9*
   - 组织开展大鼠 M1-mPFC 脑区微丝电极植入手术 30 余场
   - 针对课题组新生手术教学

3. 大鼠行为训练负责人, Computational Cognitive Engineering Lab *2022.9-2023.9*
   - 组织开展大鼠压杆行为训练，累计记录超 130 天
   - 行为数据与神经信号采集设备的维护、更新

4. 基于生理信号和认知分析的产品方案设计研究 *2018-2021*

5. 国家自然科学基金：支持设计认知的机械产品创新设计理论、方法及应用研究 (参与) *2020-2021*

6. 国家重点研发项目课题：复杂产品全生命周期价值链协同平台研发 (参与) *2019-2021*

7. 2019 之江杯全球人工智能竞赛（行人多目标跟踪算法开发） *2019.04-2019.07*

8. Matlab Mobile 步数测量与运动轨迹重建 *2018*

9. 上海市大学生创新创业计划项目（糖果包装机） *2015-2016*

学术服务

1. 审稿人：ISBI2025, NER2025, TIV
2. 会议组委会, 4th International Workshop on Neural Engineering & Rehabilitation *2023.08*
3. 会议组委会, 3rd International Workshop on Neural Engineering & Rehabilitation *2022.05*

教学与指导

1. 课程助教, EMIA4110 Practical Machine Learning *2024 春季学期*

2. 课程助教, ELEC4130 Machine Learning on Images *2023 春季学期*

3. 学生指导
   - 动物神经信号的点过程建模分析 *2024.6-2024.9*
   - 大鼠 M1-mPFC 脑区微丝电极植入手术教学 *2023.9-2024.9*
   - 产品设计认知实验，语言与 EEG 数据处理，论文写作 *2020.9-2022.9*

实习经历

1. 迅达（中国）电梯有限公司，上海 *2017.11-2018.02*
   - 销售数据分析及汇报
   - 参与新产品宣传、销售政策制订
   - 商业拓展、产品展示、客户接待

2. 熠格 EUCI Software，上海 *2017.07-2017.08*
   - 组织培训 CONTACT PLM 软件，软件手册翻译